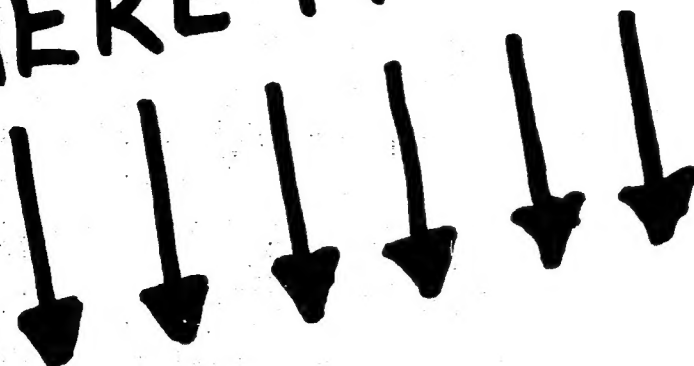


HERE IT IS!



REEL

129

From

FELTYN', I.A.

L 59202-65 FMT(m)/FMT(L)/FMT(t) I/P(c) JD
 ACCESSION NR: AR5017544

UR/0058/65/000/006/0065/0065

SOURCE: Ref. zh. Fizika, Abs. 6E512

AUTHORS: Pundur, P. A.; Feltyn', I. A.

TITLE: Measurement of the local lifetime of carriers in germanium

Izv. AN LatvSSR. Ser. fiz. i tekhn. n., no. 6, 1964, 15-22

TOPIC TAGS: germanium, carrier lifetime, local lifetime, minority carrier, dislocation density

TRANSLATION: Some problems are worked out concerning a procedure for measuring the local lifetime τ of minority carriers in germanium. The dependence of the local lifetime τ on the concentration of conductivity σ is determined. The conditions are obtained, under which τ is determined as the difference between the delays of two pulses. Results of measurements of τ in local regions of germanium samples with dislocation-density gradient are presented.

1964 10/11 65

ENCL: 00

Card 1/1

AUTHOR: Felty'n, I.

TITLE: The second All-Union conference on p-n transitions in semiconductors [Held in Riga, 23 May through 2 June 1964]

SOURCE: AN LatSSR. Izvestiya, no. 10, 1964, 105-106

TOPIC TAGS: semiconductor, p n junction, germanium silicon semiconductor, re-combination radiation

ABSTRACT: The article is a report of the proceedings of the second All-Union conference on p-n transitions in semiconductors, held in Riga from 23 May through 2 June 1964. The conference was organized by the Institute of Physics of the Latvian Academy of Sciences. It was attended by 174 delegates from 14 countries. Particular attention was paid to the recombination radiation of p-n junctions, in which B.M. Vul was awarded the Lenin Prize. V.M. Tuckaevich spoke about the possibilities for high-power semiconductor devices. Several questions were raised concerning the physical and electrical properties of p-n junctions in the binary compounds of germanium and silicon, as well as the

L 22635-65

ACCESSION NR: AP4049707

2

theory of tunnel p-n junctions. Papers dealing with the electrical properties of heterojunctions, such as germanium-gallium arsenide or indium antimonide-gallium antimonide, were also presented, and the valuable work being carried out at the Power Engineering Institute of the Latvian Academy of Sciences and at the Institut fiziki i matematiki AN Litovskoy SSR (Institute of Physics and Mathematics of the Lithuanian Academy of Sciences) was noted. Attention was called to the following research results: 1) recombination radiation, 2) semiconductor power devices, 3) mu-layer and film devices for microelectronics, 4) heterojunctions in semiconductors and metal-semiconductor contacts, and 5) p-n junctions in materials with high impurity contents.

ASSOCIATION: none

[08]

SUBMITTED: 00

ENCL: 00

SUB CODE: 85, 10

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3170

Card 2/2

L 58298-65 ENG(f)/ENT(1)/ENT(m)/EPE(c)/EPP(1)/EPR/EPP(f)/T/EPP(t)/EEC(b)-2/
EPP(b)/EVA(c) Pr-4/PS-4/PI-4 IJP(c) JD/WH/GG/RM
ACCESSION NR: AP5000964 UR/0371/65/000/001/0026/0032 47/8

AUTHORS: Kalnina, R. (Kalnynya, R. P.); Feltins, I. (Feltyn', I.A.)

TITLE: Production of protective films of silicon dioxide on germanium and investigation of their protective properties

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 1, 1965, 26-32

TOPIC TAGS: silicon dioxide, protective coating, prolytic decomposition, tetraethoxysilane, thin film

ABSTRACT: The purpose of this work was to study the conditions under which SiO_2 films can be obtained on germanium by decomposition of tetraethoxysilane, and to check on the masking properties of the films in processes involving the diffusion of antimony and arsenic, as well as the fusing of indium in germanium. The films were obtained on germanium by pyrolytic decomposition of the tetraethoxysilane, using a setup whose schematic diagram is shown in Fig. 1 of

Card 1/3

L 58290-65

ACCESSION NR: AP5009964

the Enclosure. Films 200 -- 20,000 Å thick were produced by this technique. A study was made of the influence of various factors on the film growth, such as duration of the process, temperature of the process, and the coefficient of refraction. The coefficient of refraction of the films was found to be equal to the coefficient of refraction of SiO₂ produced by oxidation of silicon. Films of thickness larger than 500 Å, in the temperature interval from 800 to 900°C, after a diffusion annealing of several hours, were found to be practically impermeable to the substance. SiO₂ films protect the surface of germanium from oxidation up to 900°C.

ASSOCIATION: Institut energetiki AN LatvSSR (Institute of Power Engineering AN LatvSSR)

SUBMITTED: 04Jul64

ENCL: 001

SUB CODE: SS

NR REF SOV: 000

OTHER: 008

Card 2/3

I. 58298-65
ACCESSION NR: AP5009964

ENCLOSURE: 01

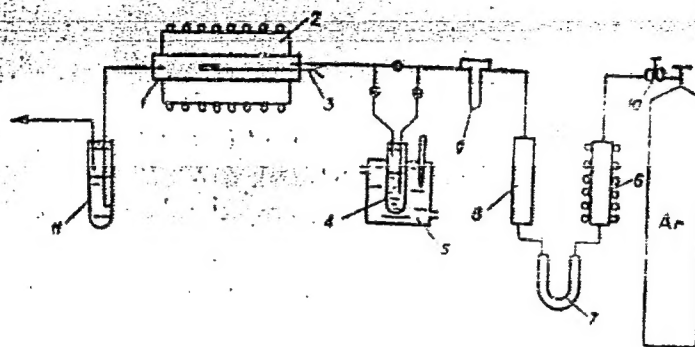


Fig. 1. Schematic diagram of experimental set-up.

1 - Quartz tube, 2 - electric oven, 3 - thermocouple, 4 - saturator, 5 - water
saturator, 6 - copper-chip column, 7 - KFI granules, 8 - silica-gel column,
9 - test tube, 10 - reductor, 11 - oil seal.

Card 3/3/11

L 1996-66 EWT(1)/ENP(e)/EWT(m)/ENP(w)/ENP(1)/ETC/ENG(m)/T/ENP(t)/ENP(b)/ENA(h)
IJP(c) JD/JG/AT/WH

ACCESSION NR: AP5023295

UR/0371/65/000/004/0123/0126

AUTHOR: Feltins, I. (Feltyn', I. A.); Freiberga, L. (Freyberga, L. A.)

TITLE: The properties of Si-SiC and Ge-SiC heterojunctions

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 4, 1965, 123-126

TOPIC TAGS: silicon semiconductor, germanium semi-conductor, junction dioxide

ABSTRACT: Silicon-silicon carbide and germanium-silicon carbide heterojunctions were obtained by the thermal decomposition of organic silicon compounds. The volt ampere characteristics of the junctions obtained were studied by the dependence of the capacitance of the junction on the applied voltage. The contacts to the germanium-silicon carbide and silicon-silicon carbide heterojunctions were made by spraying gold. The volt ampere characteristics were determined by the constant current method, while the dependence of the capacitance on the applied voltage was measured by the change in the front of the rectangular current impulses. The measurements show that silicon-silicon carbide and germanium-silicon carbide

Card 1/2

L 1998-66

ACCESSION NR: AP5023295

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bide heterojunctions, by virtue of their electrical properties, are located between semiconductor-dielectric heterojunctions (for example, silicon-silicon dioxide) and heterojunctions between two semiconductors with a great difference in the lattice constant, but are similar in their dielectric properties to silicon and germanium. The dielectric parameters of the silicon carbide layer and structural defects on the separation boundary between silicon or germanium and silicon carbide were found to exert a substantial effect on the electrical characteristics of the junctions. Orig. art. has: 2 figures

ASSOCIATION: Institut energetiki AN Latv. SSR (Institute of Energetics AN LatSSR)

44,55
SUBMITTED: 15Feb65

ENCL: 00

SUB CODE: SS, EM

NR REF SOV: 002

OTHER: 002

Card 2/2 LP

L 24443-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AP6007832

SOURCE CODE: UR/0120/66/000/001/0178/0180

AUTHOR: Feltyn', I. A.; Er'elis, U. Ya.

ORG: Institute of Power Engineering AN LatSSR, Riga (Institut energetiki AN LatSSR)

TITLE: A device for producing semiconductor specimens with controlled dislocation density

SOURCE: Priboiy i tekhnika eksperimenta, no. 1, 1966, 178-180

TOPIC TAGS: semiconducting material, crystal dislocation, plastic deformation

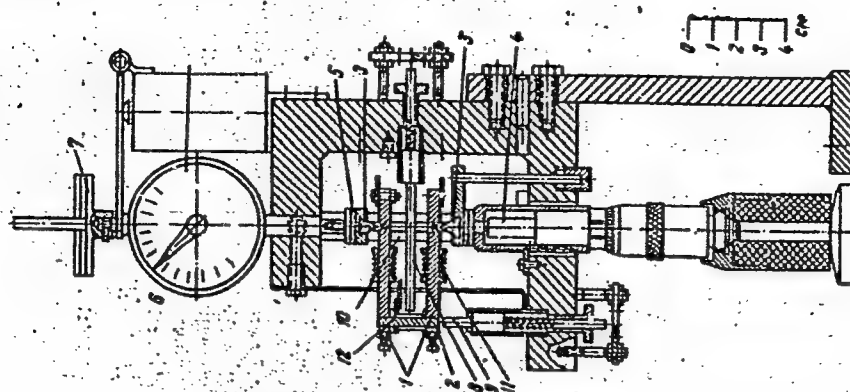
ABSTRACT: The authors describe a device for plastic deformation of semiconductor single crystals in the form of rods or narrow plates with the application of a heater current. No force is applied directly to the middle section of the specimen. This eliminates localized accumulation of defects in this region and makes it possible to set up a temperature field in the specimen for uniform variation of dislocation density. Penetration of rapidly diffusing impurities from adjacent components into the middle section of the specimen is also prevented. A diagram of the device is shown in the figure. The ends of the specimen are rigidly fastened in molybdenum holders 1 which also transmit the deforming force to the specimen 2 and serve as electrodes. The holder presses against steel wedges 3. The lower wedge is fastened to micrometer screw 4 and the upper wedge is connected through ceramic insulator 5 to dial indicator

Card 1/3

UDC: 539.293:537.312.9

L 24443-66

ACC NR: AP6007832



6 and weight platform 7. The current for heating the specimen is fed to the holder through flexible wires which do not add any force. Heating of the specimen is monitored by thermocouples at the side 8 and the end 9 of the specimen. When it is necessary to take special precautions against contamination of the specimen, the side thermocouple may be removed from the heating zone after heating conditions have been determined for a whole series of identical specimens. While the specimen is being heated, the top holder moves freely upward along guides 10. Heating elements 11 may be used for more uniform heating of the specimen. Resistance oven 12 has the same

Card 2/3

L 24443-66

ACC NR: AP6007832

function. The device has been used for studying the effect which dislocations have on the diffusion of elements in groups III and IV in germanium. Orig. art. has: 2 figures. 27

SUB CODE: 20/

SUBM DATE: 09Feb65/

ORIG REF: 004/

OTH REF: 003

Card 3/366

1. SOURCE-67 EMT(1)/EMT(m)/EMT(l)/EMT (c) AT/JJ
ACC NIN RFGOM7893

SOURCE CODE: UR/0571/66/000/003/0019/0026

AUTHOR: Porin', V. M.; Meltya', I. A.

ORG: Institute of Power Engineering AN LatvSSR (Institut energetiki AN LatvSSR)

TITLE: Production of a five-layer p-n-p-n-p structure in germanium

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 3, 1966, 19-20

TOPIC TAGS: germanium semiconductor, junction diode, physical diffusion, thermoelectric power, dielectric breakdown

ABSTRACT: The authors produced structures of this type by using n-type germanium (specific resistivity from 3 to 5 ohm-cm) specially treated to remove various contaminating metals from the surface. Samples measuring 10 x 4 x 3 mm were placed in apparatus first evacuated to 10^{-5} mm Hg, and then filled with helium to a pressure slightly higher than atmospheric. They were then annealed by diffusion in a two-zone oven for 2.5 -- 20 hours at sample temperatures at 650 -- 850C and diffusant temperature 600 -- 750C. After the diffusion process, the sample was cooled at a rate of 200C/hr. The surface concentration of the diffusing indium exceeded 2.5×10^{18} cm⁻³. This resulted in a p-n-p-n-p structure free of the difficulties due to thermal conversion. The widths of the individual layers varied with the diffusion temperature,

Card 1/2

L 09408-67

ACC NR: AP6027893

the annealing, and the surface concentration. The breakdown voltages of each junction range from 10 to 15 V. Methods of controlling the production and measuring the surface concentration are mentioned. The temperature dependence of the thermoelectric power in one sample is given. Orig. art. has: 1 figure

SUB CODE: 20/ SUBM DATE: 08Jan65/ ORIG REF: 003/ OTH REF: 005

Card 2/2

L 09902-67 EWT(m)/EMP(t)/ETI IJP(c) JD

ACC NR:

AP6033669

SOURCE CODE: UR/0371/66/000/004/0034/0039

AUTHOR: Kalnynya, R. P. --Kalnina, R.; Feltyn', I. A. -- Feltins, I.

30

ORG: Institute of Power Engineering, AN LatSSR (Institut energetiki AN Latv. SSR)

TITLE: Local diffusion of gallium in germanium

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 4, 1966, 34-39

TOPIC TAGS: gallium, germanium, silicon dioxide film, gallium diffusion, gallium doped silicon dioxide, vapor phase diffusion

ABSTRACT: A method has been developed for the formation of local p-n transitions in germanium by the use of gallium doped silicon dioxide films. Conditions have been investigated for alloying silicon dioxide films with gallium in the process of preliminary diffusion from the vapor phase. Diffusion layers have been obtained in germanium with surface concentration of $\sim 10^{16} - 10^{17} \text{ cm}^{-3}$ by gallium diffusion from the alloyed silicon dioxide films. Orig. art. has: 4 figures and 3 tables. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 29Nov65/ ORIG REF: 001/ OTH REF: 013/

Card 1/1

L 36860-66 EWP(j)/EWT(m) RM

ACC NR: AP6019489

SOURCE CODE: UR/0197/66/000/005/0055/0059

AUTHOR: Bochkan, P. Ya.; Porin', V. M.; Fel'tyn', I. A.

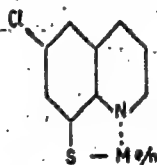
ORG: Power Institute, AN Latv. SSR (Institut energetiki AN Latv. SSR)

TITLE: Prevention of thermal conversion of germanium by means of 6-chloro-8-mercaptoquinoline

SOURCE: AN LatSSR. Izvestiya, no. 5, 1966, 55-59

TOPIC TAGS: germanium, semiconductor conductivity, complex molecule

ABSTRACT: The possibility of cleaning the surface of germanium with the reagent 6-chloro-8-mercaptoquinoline in order to prevent the thermal conversion (change from n-type to p-type conductivity) of this semiconductor was investigated. A simplified method of synthesizing 6-chloro-8-mercaptoquinoline is described. The compositions of compounds of this reagent with Cu, Sn, Sb, Bi, Tl, In, Ga, Ni, Zn, Pb, Cd, Co, and Hg are given and the pH values at which they are formed and their colors are tabulated. The reagent reacts with the metal ions by forming the following complex: ↑



Card 1/2

L 36860-66

ACC NR: AP6019489

where n is the valence of the metal. The reagent was found to be highly effective in preventing thermal conversion on n-type germanium. Orig. art. has: 1 table.

SUB CODE: 07,20/ SUBM DATE: 01Dec65/ ORIG REF: 003/ OTH REF: 004

Card 2/2

ACC NR: AP7005268

SOURCE CODE: UR/0371/66/000/006/0099/0100

AUTHOR: Kalnach, Ya. V.; Feltyn', I. A.; Freyberga, L. F.

ORG: Physicoenergetics Institute, AN Latv. SSR (Fiziko-energeticheskiy institut, AN Latv. SSR)

TITLE: About the effect of SiO_2 on the growth of silicon carbide on silicon

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 6, 1966, 99-100

TOPIC TAGS: silicon carbide, thin film, silicon dioxide, electron diffraction analysis

ABSTRACT: Monocrystalline layers of SiC were grown from methyldichlorosilane on silicon using either an argon or a hydrogen atmosphere at 1100°C and an electron diffraction study was done on the layers. Electron diffraction patterns were shown of epitaxial SiC grown under hydrogen and argon. Crystalline SiC grew under hydrogen, whereas an amorphous structure developed under argon. The external appearance of both forms of SiC was identical under microscopic examination. Electrolytic polishing of these layers did not cause growth figures. Growth conditions were changed by adding SiO_2 between the silicon and the growing SiC. Whenever SiO_2 was present, only amorphous SiC formed. After soaking in HF the amorphous layers were removed easily from

Card 1/2

ACC NR: AP7005268

the silicon substrate. A redness developed on the SiC layers as a result of oxidation due to the presence of SiO₂. This coloring could be removed by further treating the samples in 49% HF. The electrical properties of the SiC layers which formed in the presence of SiO₂ were examined by measuring the volt-ampere characteristics of n-n and p-n heterotransitions. For n-n heterotransitions SiC (+) was the direct voltage, while for p-n heterotransitions SiC (-) was the reverse voltage. The ratio of direct to reverse voltage was always 1/6. Tunneling occurred easily in these layers, since SiC had no effect on the volt-ampere characteristics. Orig. art. has: 1 figures.

SUB CODE: 11,20/

SUBM DATE: 21Jun66/

ORIG REF: 001/

OTH REF: 003

Card 2/2

ALEKSANDROWICZ, J.; BLICHARSKI, J.; FELTYNOWSKI, A.

Functional stages of blood platelets in electron microscope.
Polski tygod. lek. 7 no. 45:1472-1474 10 Nov 1952. (CLML 24:1)

1. Of the Third Internal Clinic (Head--Prof. J. Aleksandrowicz, M. D.) of Krakow Medical Academy and of the State Institute of Hygiene (Head--F. Przesmycki, M.D.) in Warsaw.

ALEKSANDROWICZ, J.; Blicharski, J.; ~~FELTYNOWSKI~~.

Morphology of granulocytes; electron microscopy. Polski tygod. lek.
7 no.51-52:1765-1766 29 Dec 1952. (CJML 24:2)

1. Of the Third Internal Clinic (Head--Prof. J. Aleksandrowicz, M.D.)
of Krakow Medical Academy and of the State Institute of Hygiene (Head
--Prof. F. Przeszycki, M.D.), Warsaw.

FELTYNOWSKI, A.

FELTYNOWSKI, A. ROMANOWSKI, W.

"Penetration of Bacteria into Nucleated Erythrocytes in the Light of Electron-microscope studies." p. 267 (Acta Physiologica Polonica. Vol, 4, no. 4 1953 Warszawa.)

Vol. 3, no. 6

SO: Monthly List of East European Accessions./Library of Congress, June 1954, Uncl.

Chemical Abstracts
May 25, 1954
Biological Chemistry

3
2
Electron-microscope studies on the morphology of influenza virus. Antoni Feltykowski and Zofia Zych. *Med. Doświadczalna i Mikrobiol.* 5, 423-30(1953); *cf. Hoyle, et al., Nature* 171, 250(1953).--Influenza virus (Type A) grown on chick embryo allantoic fluid, was purified by a simplified Taylor, *et al.*, method (*C.A.* 38, 5391⁴) i.e. by adsorption on chick red cells followed by elution with NaCl. Clear pictures of this virus were obtained. I. Z. R.

9-29-54

PELTYNOWSKI, A.; ZYCH, Z.

Influenza virus adsorption of chicken erythrocytes; electron microscopy.
Med. dosw. mikrob. 5 no.4:431-434 1953. (CJML 25:5)

1. Of the Virusological Department (Head---Prof. F. Przesmycki, M.D.)
of State Institute of Hygiene, Warsaw.

FELTYNOWSKI, A.

Application of the replica method in study of erythrocyte surface with special reference to the study of influenza virus adsorption on chicken erythrocytes. Med. dosw. mikrob. 5 no.4:435-438 1953. (CIME 25:5)

1. Of the Virusological Department (Head--Prof. F. Przesmycki, M.D.) of State Institute of Hygiene, Warsaw.

FEL'TINOVSKIY, A.

ALEKSANDROVICH, I.U.; BLIKHARSKIY, Yu.; FEL'TINOVSKIY, A.

Morphology of granulocytes in electron microscopic picture. Arkh.
pat., Moskva 15 no.6:75-77 Nov-Dec 1953. (GIML 25:5)

1. Of the Third Clinic of Internal Diseases of Krakow Medical Academy
(Director -- Prof. Yu. Aleksandrovich) and Krakow State Institute of
Hygiene (Director -- Prof. M. Przesmycki).

FELTYNOWSKI, A.

Category : POLAND/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1602

Author : Feltynowski, A., Glass, I., Piwkowski, T., Torun, A.

Title : Microstructure of Photoconductive Lead-Sulphide Layers

Orig Pub : Bull. Acad. polon. sci. Cl. III, 1954, 2, No 8, 389-391

Abstract : See also Ref. Zhur. Fiz., 1955, 22185

Card : 1/1

FELTYNOWKI, A., GLASS, I., PIKOWSKI, T., AND TORUN, A.

"Microstructure of Photoconducting Layers in Lead Sulfide".
Byul. Polsk. An. Otd. III, 2, No 8, pp 395-397, 1954

The fine crystalline structure of photocuncucting PbS was studied under electron microscope and the chemical structure by electron diffraction. Crystals have an elongated shape 900 - 3000 A long and 250 - 1000 A wide. The diffraction pattern indicates a regular face centered structure. (RZhFiz, No 10, 1955)

SO: Sum No 812, 6 Feb 1956

FELTYNOWSKI, A.

ROMANOWSKI, W.; FELTYNOWSKI, A.

Electron microscopy of structural changes of erythrocytes exposed to heterogenous iso-hemagglutinins. Acta physiol. polon. 5 no.4:550-551 1954.

Lab. of Human Physiology, Inst. of Med, Warsaw

1. Z Zakladu Fizjologii Czlowieka Akademii Medycznej w Warszawie.

Kierownik: prof. dr Fr. Czubalski. Z Panstwowego Zakladu Higieny w

Warszawie. Kierownik: prof. dr F. Przesmycki.

(HEMAGGLUTINATION,
microscopy, electron)
(MICROSCOPY, electron,
of hemagglut.)

*State Inst of Hygiene
in Warsaw*

FELTYNOWSKI, H.S.
PRZESMYCKI, Feliks; SOBRWOLSKA, Halina; FELTYNOWSKI, Antoni; STANCZYK,
Regina; WALKOWSKA, Elzbieta; ZYCH, Zofia; (techniczny wspoludzial)
CIEPINSKA, Swietlana; SZORZELSKA, Krystyna

Laboratory characteristics of the epidemic of influenza in 1953.
Med. dozw. mikrob. 6 no.3:241-251 1954.

Dept of Virology, State Hygiene Lab (Inst?)
1. Z Oddzialu Wirusologii Panstwowego Zakladu Higieny. Kierownik:
prof. S.F. Przesmycki.
(INFLUENZA, epidemiology,
Poland, statist. analysis)

FELTYNOWSKI, ANTONI.

PRZESMYCKI, Feliks; WALKOWSKA, Elzbieta; DOBROWOLSKA, Halina; ZYCH,
Zofia; FELTYNOWSKI, Antoni; PRZYBYLIKIEWICZ, Zdzislaw; ZANSKI,
Jerzy

Vaccination against influenza. Med.dow. mikrob. 6 no.4:345-358 1954

State Hygiene Lab in Warsaw, Dept. of Virology
1. Z Panstwowego Zakladu Higieny w Warszawie, Oddzialu Wirusologii.
Z Krakowskiej Wytworni Surowic i Szczepionek w Krakowie. Z
Miejskiej Stacji Sanitarno-Epidemiologicznej w Lodzi.

(INFLUENZA, prevention and control,
vacc.)

(VACCINES AND VACCINATION,
influenza, results)

↓ Krakow Production Factory of Serum & Vaccines in Krakow.

Urban
↓ City Sanitary-Epidemiological Station in Lodz.

ALEKSANDROWICZ, Julian; Blicharski, Julian; ~~FELTYNOWSKI~~, Antoni

Electron microscopy of blood components. Postępy hig. med. dow.
8 no.4:445-617 1954.

III Clinic of Internal Diseases of the Acad. of Med. Krakow.

1. III Kliniki Chorob Wewnętrznych A.M.Krakow, ul Kopernika 17.

Państwowy Zakład Higieny. Pracownia Mikroskopu Elektronowego.

Warszawa, ul. Chocimska 24,

(BLOOD CELLS,

microscopy, electron)

(MICROSCOPY, ELECTRON,

of blood cells)

State Hygiene Laboratory - Electron Microscope Workshop

FELTYNOWSKI, A.

✓3823. Structural changes in human erythrocytes subjected to the influence of specific agglutinins, observed with an electron microscope. W. Romanowski and A. Feltynowski *Bull. Acad. polon. Sci.*, 1955, 3, 73-75 (Lab. of Human Physiol., Sch. of Med., Warsaw and St. Inst. of Hygiene, Warsaw).—R.b.c. of groups, A, B, and AB are treated with sera containing anti-A, anti-B, and anti-AB agglutinins and also with sera from their own groups in control experiments. R.b.c. are examined with an E.M. and in the control experiments remain unchanged with smooth, non-corrugated surfaces. In agglutinated cells lying singly, a film of some substance is visible on the surface. In cells clumped together, some are closely united and others, slightly more apart, have clearly visible filaments and protuberances. The observations are discussed with photomicrographs. AD

E. C. BUTTERWORTH



Feltykowski, A.

543. Electron microscopy of thermophilic bacteria. D. Shugar, A. Jarmolinska, and A. Feltykowski *Bull. Acad. Polon. Sci.*, 1955, 3, 211-212 (Dept. of Bacteriol., State Inst. of Hyg., Warsaw).-- E.m. observations were made on several strains of thermophilic bacteria (*Bacillus* spp.) isolated from natural fertilisers at 65° on agar slants, and selected for their ability to show reasonably good growth over the temp. range 45-65°. There was no sign of any special protective membrane, capsule or coating, to protect the protoplasmic constituents against the high temp. Nor is the cell wall of any of these strains thicker than the cell walls of mesophilic strains. The cell wall thickness of a given strain showed no variation with temp, as might be expected if it played some protective rôle.
B. VINEY.

FELTYNOVSKIY, A.

POLAND/Human and Animal Morphology - Blood and Organs of
Blood Production

Q-4

Abs Jour : Referat Zhur - Biologii, No 16, 1957, 70348

Author : Feltynovskiy, A., Sikorskaya, E.

Title : Observation by Electronmicroscopy of Erythrocytes
Treated by Several Amines

Orig Pub : Biul. Polskoy AN, 1955, otd.2, 3, No 8, 315-319

Abstract : The action of n-phenylenediamine, n-toluoldiamine and
n-aminophenol on erythrocytes was studied by means of
an electronmicroscope. The action of the studied amines
brought about in erythrocytes granulations, which differed
in morphology of typical Heinz bodies, appearing under
the action of phenylhydrazine. A more detailed characterisation
of granulation requires further biological and chemical investigation.

Card 1/1

- 69 -

USSR/ POLAND/ Physical Chemistry - Crystals

B-5

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11022

Author : Fel'tynovskiy A., Glass I., Grelevich L.

Inst : Polish Academy of Sciences

Title : Ekelectronographic Investigation of Semiconductor Layers

Orig Pub : Byul. Pol'skoy AN, Otd. 3, 1955, 3, No 11, 595-597

Abstract : Photosensitive PbTe layers sublimated in vacuum were investigated by the electronographic method. According to roentgenographic data the initial PbTe had a lattice of NaCl type with a parameter 6.36 Å. Electronograms of the sublimated layers show a system of rings corresponding to a simple lattice with a parameter 3.33 Å. This is attributed to the fact that the thin layer represents a modification of PbTe in which the atoms of Pb and Te are distributed chaotically over the points of the crystal lattice. By means of electron microscope formation of small individual crystals was observed in the PbTe layers under the influence of irradiation with an electron beam.

Card 1/1

FILTYNOWSKI
SHUGAR, D.; JARMOLINSKA, A.; FELTYNOWSKI, A

Some electron microscope observations on thermophilic bacteria.
Acta microb. polon. 4 no.3:177-182 1955.

1. Panstwowy Zaklad Higieny w Warszawie.
(MICROSCOPY, ELECTRON,
of bacteria, thermophil)
(BACTERIA,
thermophilic, electron microcopy)

ROMANOWSKI, Wieslaw; FELTYNOWSKI, Antoni

Electron microscopy of structural changes in erythrocytes following exposure to heterogenic isohemagglutinins. Acta physiol. polon. 6 no.2:171-176 '55.

(ERYTHROCYTES,

eff. of heterogenic isohemagglutinins, electron microscopy)

(MICROSCOPY, ELECTRON,

of erythrocytes after exposure to heterogenic isohemagglutinins)

(HEMAGGLUTINATION,

Eff. of heterogenic isohemagglutinins on erythrocytes, electron microscopy)

PELIYKOWSKI, ANTONI

Electron microscope study of erythrocytes acted upon by amines. Antoni Feltykowski, Ewa Sikorska, and Stanisław Krauze. *Roczniki Państwowego Zakładu Hig.* 6, 225-8 (1955) (English summary).--p-Phenylenediamine (I), p-toluenediamine (II), and p-aminophenol (III), studied *in vivo* and *in vitro*, caused granulation in erythrocytes, but typical Heinz bodies, as in the case of phenylhydrazine, do not appear. Granulations affected by I are very similar to Heinz bodies in appearance while those affected by II and III are entirely different. Heinz bodies and granulations obtained are apparently intracellular bodies. A. S. S.

(31)

PARMAS, J.; MIERZEJEWSKI, T.; ~~FELTYNOWSKI, A.~~; LAZUGA, K.

Comparative studies on properties of *Pasteurella tularemiæ*,
Pasteurella multocida, *Pasteurella rodentium* and *Brucella*
brucei. Ann. Univ. Lublin; sec.D 10:207-228 1955.

1. Z Działu Antropozoonoz Instytutu Med. Pracy Wsi w Lublinie
i Pracowni Mikroskopu Elektronowego P.Z.H. w Warszawie.

(PASTEURELLA,

multocida, pseudotuberculosis, *P. tularensis* & *Brucella*
brucei, comparison (Pol))

(BRUCELLA,

brucei, comparison with *Pasteurella multocida*, *P. tularensis*
& *P. pseudotuberculosis* (Pol))

ALEKSANDROWICZ, Julian; Blicharski, Julian; FELTYNOWSKI, Antoni

Electronoscopy of the morphotic blood components with special reference to blood platelets. Polskie arch. med. wewn. 25 no.1a: 143-147 1955.

1. Z III klin. chor. wewn. A.M. w Krakowie; kier. prof. dr. med. J. Aleksandrowicz. Z Panstwowego zakladu Higieny w Warszawie; dyrektor prof. dr. med. F. Przemyski.

(BLOOD PLATELETS, determination
electronoscopy)

(BLOOD
constituents, electronoscopy)

WILCZEK, Marian; FELTYNOWSKI, Antoni

Electron microscopic investigations on sympathetic ophthalmia.
Klin. oczna 25 no.2:77-79 1955.

1. Klinika Chorob Oczu A.M. w Krakowie. Kierownik: prof. dr.
M. Wilczek, prac Pracownia Mikroskopu Elektronowego Oddzial
Wirusow) Panstw. Zakladu Higieny w Warszawie. Dyrektor: prof.
dr F. Pruszycki.

(OPHTHALMIA, SYMPATHETIC, bacteriology,
virus, electron microscopy)

(VIRUSES,

ophthalmia, sympathetic electron microscopy)

(MICROSCOPY, ELECTRON,

of virus in sympathetic ophthalmia)

WILCZEK, Marian; FELTYNOWSKI, Antoni; PRZYBYLKIOWICZ, Zdzislaw.

Electron microscopy of trachoma virus. Klin. ocna 25 no.2:
81-84 1955.

1. Klinika Chorob Oczu A.M. w Krakowie. Kierownik: prof. dr M.
Wildzek Oddzial Wirusow (Pracowania Mikroskopy elektronowego)
Panstw. Zakladu Higieny w Warszawie Dyrektor: prof. dr F.
Prasmycki. Zaklad Mikrobiologii Lekarskiej A.M. w Krakowie
Kierownik: prof. dr Przybylkiewicz.

(TRACHOMA, viruses,
microscopy, electron)

(MICROSCOPY, ELECTRON,
of trachoma virus)

(VIRUSES,
trachoma, electron microscopy)

14117100001-3

1338. Laboratory survey of the 1954 and 1955 influenza epidemics. F. Przemycki, H. Dobrowolska, Z. Zych, and A. Feltynowski *Bull. Acad. polon. Sci.*, 1956, 4, 111-114 (Dept. of Virology, State Inst. of Hygiene, Warsaw, Poland).—Type A' viruses were responsible for the 1954 epidemic, the majority of strains isolated being akin to the "PAN" strain. All the strains in this 1954 epidemic had a filamentous structure. During the 1955 epidemic, 6 strains belonging to type B were isolated, these being antigenically remote from the Lee strain. Two groups could be distinguished antigenically and otherwise among the B strains; morphologically, all showed oval bodies. It would appear that B strains have become notably unstable. It might thus be possible, analogically to the case of A, to distinguish a subtype B.

B. Viny

SZCZYGIELSKA, Jadwiga; BIERNACKI, Marian; PLESZCZYNSKA, Ewa;
PARNAS, Jozef; FELTYKOWSKI, Antoni

Essays of demonstration of interference of swine influenza
virus G₁ with human influenza virus. Med. dosw. mikrob. 8
no.3:357-369 1956.

1. Z Katedry Mikrob. Lekarskiej AM w Lublinie.
(INFLUENZA VIRUSES,
interference of swine with human strains (Pol))

PRZESMYCKI, Feliks; DOBROWOLSKA, Halina; ZYCH, Zofia; FELTYNOWSKI, Antoni;
przy współudziale techn. Hanny Cieplinskiej i Krystyny Zgorzelakie

Laboratory characteristics of the 1954-55 epidemic of influenza.
Przegl. epidem., Warsz. 10 no.2:97-102 1956.

1. Z Zakładu Wirusologii P.Z.H. Med. Dosw. i Mikrob. 1954, 3,
241.

(INFLUENZA, epidemiology,
in Poland (Pol))

BLACHARSKI, Julian; PELTYNOWSKI, Antoni

Microtomy of ultra-thin slices for electron microscopy.
Polski tygod. lek. 11 no.52:2204-2208 24 Dec 56.

1. (Z III Kliniki Chorob Wewnętrznych A.M. w Krakowie;
kierownik: prof. dr. J. Aleksandrowicz i z Państwowego
Zakładu Higieny w Warszawie; kierownik: prof. dr. F. Przesmycki).
Kraków, ul. Kopernika 17 III Kl in. Chor. Wewn. A.M.

(MICROSCOPY, ELECTRON,

microtome for ultra-thin tissue slices (Pol))

(MICROTOMES,

ultra-thin tissue slices for electron microscopy (Pol))

FELIWNOWSKI, A.

1433. COAL SURFACE ANALYSIS BY MEANS OF AN
ELECTRON MICROSCOPE A. F. HUGHES, A. J. ...

ELECTRON MICROSCOPY A. F. J. van der
Polen Vol. 15 No. 1 1975

1. SUBJECT MATTER:

with chromium. An aluminum layer is then vapor-deposited and the saponack dissolved in amyl acetate. The aluminum layer with chromium pre-shadowing is mounted on a copper grid for use in the electron microscope. The procedure described here requires 30 hours for the deposition of the chromium and aluminum.

1 FELTYNOWSKI, A.

POLAND/Electronics - Photocells and Semiconductor Devices

H-8

Abs Jour : Ref Zhur - Fizika, No 4, 1958, No 8777

Author : Feltynowski, A., Glass, I., Piwkowski, T., Tarun, A.
Inst : Institute of Physics, Polish Academy of Sciences, Warsaw,
Poland

Title : Microstructure of Photoconductive Lead Sulfide Layers

Orig Pub : Acta phys. polon., 1956, 15, No 5, 275-282

Abstract : The microstructure of PbS layers was investigated by the methods of electron diffraction and electron microscopy. The PbS layers were obtained by evaporation in vacuum, and the compounds for the investigations were obtained by the method of formvar pseudo replicas, and also by direct sputtering on formvar, collodion, or aluminum films. The PbS layers consisted of crystals measuring 200 to 300 Å. The type of substrate did not seem to affect the size and shape of the crystals. The diffraction patterns from directly sputtered layers correspond to face-centered lattice of the NaCl type. The diffraction patterns of the pseudo replicas

Card : 1/2

ALEKSANDROWICZ, J.; BLICHARSKI, J.; FELTYNOWSKI, A.

Recent studies on erythrocytes with aid of electron microscope.
Polski tygod. lek. 12 no.6:222-225 4 Feb 57.

1. (Z III Kliniki Chorob Wewnętrznych A.M. w Krakowie;
kierownik: prof. dr. Julian Aleksandrowicz i z Państwowego
Zakładu Higieny w Warszawie; kierownik: prof. dr.
Feliks Przesmycki). Adres: Krakow, ul. Kopernika 17, III
Klinika Chorob Wewnętrznych A.M.

(ERYTHROCYTES

electron microscopy, review(Pol))

(MICROSCOPY, ELECTRON

of erythrocytes, review (Pol))

Country : POLAND S
 Category: Human and Animal Morphology (Normal and Pathological).
 Blood and Organs of Hemopoiesis.
 Abs Jour: RZhBiol., No 2, 1959, No 7558
 Author : Aleksandrowicz, J.; Blicharski, J.; Feltynowski, A.
 Inst : -
 Title : An Investigation of Blood Platelets by Means of
 Ultrathin Slices and the Electronic Microscope.
 Orig Pub: Folia morphol., 1957, 8, No 3, 161-167
 Abstract: A granulomere of blood platelets (BP) of healthy
 humans consists of 30-50 granules with the size of
 0.2-0.3 μ , which are grouped in the center or are
 disseminated over the whole KM. The granules of
 granulomere originate apparently from the mitochondrias
 of megakaryocytes. Among the granules of granulomere

Card : 1/2

S-29

FELTYNOWSKI

POLAND/Electronics - Electron Microscopy

H-4

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 11104

Author : Feltynowski, A.

Inst : Not Given

Title : First European Conference on Electron Microscopy

Orig Pub : Postepy fiz., 1957, 8, No 3, 377-379

Abstract : Brief remark on the first European conference on electron microscopy, held from 17 to 20 October 1956 in Stockholm. Participating in the work of the conference were more than 400 scientists from 27 countries, including non-European ones (Japan etc.) A survey of the accomplishments over the two year period after the international conference in London was made. 180 papers were delivered to 22 sections: on biology, virusology, electron optics, problems connected with image contrast, with resolution of electron microscopes, with research procedures, etc. Of particular interest was the paper by Menster (England) on a procedure for investigating crystals of platinum phthalocyanide. Microphotographs of crystals with magnification on one and one half million were demonstrated. Mention should

Card : 1/2

GDR/Physical Chemistry. Crystals.

B

Abs Jour: Ref Zhur-Khim., No 5, 1959, 14376.

Author : Feltynowski I., Glass I, Grelewicz L.

Inst :

Title : The Fine Structure of Photoconducting Layers of PbTe.

Orig Pub: Expl. techn. phys., 1958, 6, No 1, 17-20.

Abstract: The accumulation of dust in the vacuum of a PbTe film coating was examined electronmicroscopically and electrographically. On the basis of the obtained results, it is assumed that in the type of the NaCl lattice with a 6.42 Å, the bundles are statistically occupied by Pb or Te atoms, leading to the occurrence of an electronogram which corresponds to a primitive cubic lattice with a 3.21 Å. - M. Polteva.

Card : 2/2

FELTYNOWSKI, A.

Jozef Parnas, A. FELTYNOWSKI, W. Bulikowski, "Anti-brucella Phage,"
Nature, Vol. 192, No. 4649, 6 Dec 58, pp1610-11.

Published from the Department of Medical Microbiology of the Medical
Academy and the Anthroponoses Section of the Institute of Rural
Occupational Medicine and Rural Hygiene, Lublin, Poland.

FELTYNOWSKI, A

BLICHARSKI, J.

SURNAME (in caps); Given Name

Country: Poland

Academic Degrees: /not given/
Second Clinic of Internal Diseases, School of Medicine (II Klinika Chorob Wewnętrznych Akademii Medycyny), Krakow; Director: Prof. T. TROPEA, dr med; and the Electronic Microscope Laboratory of the State Scientific Institute of Hygiene (Państwowy Mikroskopowy Laboratorium, Państwowy Zakład Higieny), Warsaw; Director: Prof. F. PRZYBYCIEL, dr med

XXXX

Source: Warsaw, Przegląd Lekarski, No 5, 1961, p. 221

Date: "Paroxysmal Nocturnal Haemoglobinuria. Electronic Microscopy Study of the Structure of Thrombocytes." (Abstract)

Co-authors:

FELTYNOWSKI, A

KIRCHMAYER, S., Second Clinic of Internal Diseases, School of Medicine, Krakow; Director: Prof. T. TROPEA, dr med

BARTOSZEWICZ, Wladyslaw; FELTYNOWSKI, Antoni

The effect of estrogens on the ultrastructure of the vaginal epithelium of mice. Folia morphologia 12 no. 4:235-247 '61.

1. Zakład Biologii Nowotworów, Instytut Onkologii im. Marii Curie-Skłodowskiej, Warszawa. Dyrektor: prof. dr. J. Laskowski. Kierownik Zakładu: prof. dr. K. Dux i Państwowy Zakład Hygieny, Warszawa Kierownik: prof. dr. F. Przesmycki.

FELTYNOWSKI, Antoni; SIKORSKA, Ewa

Structure of the D 29 mycophage. Med. dosw. mikrobiol. 17 no.2:
153-156 '65.

1. Z Panstwowego Zakladu Higieny i Instytutu Gruzlicy w Warszawie.

24(2)

AUTHORS: Feltynowski, A., Górski, L.

POL/45-18-4-2/8

TITLE: Investigation of InSb Monocrystalline Cleavage Planes by Means of an Electron Microscope

PERIODICAL: Acta Physica Polonica, 1959, Vol 18, Nr 4, pp 279-293 (Poland)

ABSTRACT: It is the aim of this work to examine the question as to how far the method of examining cleavage planes of monocrystals by means of electron microscopes is suited to examine structure defects and their effect on semiconductor properties. Similar investigations were made by other authors, so by Gilman (1956) on Sn monocrystals by applying methods of light microscopy. Due to the defects in the monocrystals, so-called cleavage steps occur at the cleavage plane during the cleavage process. Bilby and Smith (1956) found so-called river patterns, i.e. a great number of cleavage steps at the grain boundary, by investigation of glide planes in cleaved Sn monocrystals after deformation. In this work, the authors used InSb monocrystals, which were produced by the method of zonal fusion and were cleaved along the faces (111) and (100). The structure was made visible by examining an aluminum sheet under an electron microscope. The aluminum

Card 1/2

Investigation of InSb Monocrystalline Cleavage
Planes by Means of an Electron Microscope

POL/45-18-4-2/8

sheet was obtained by an imprinting method. Figures 1 - 17 show the change in structure of cleavage steps and slip bands in the glide plane. According to Mott and Nabarro (1948), the gliding is due to dislocations caused by different treatment of the crystal. Kochendörfer (1938) ascribes them to different kinds of structure defects. According to the relationship between cleavage steps and dislocations as well as in view of the possibility of observing slip bands on the cleavage plane, examination of those planes may offer a method of examining defects in monocrystals of several important semiconductor materials. The authors thank Professor Doctor L. Sosnowski for his stimulating discussion. There are 17 figures and 9 references.

ASSOCIATION: Institute of Physics of the Polish Academy of Sciences, Warsaw

SUBMITTED: November 15, 1958

Card 2/2

DUDZIAK, Zenon; FELIJS, Edward; PANEK, Genowefa

An attempt to separate group antibodies from the rheumatoid factor by gel filtration of sera from cases of chronic rheumatoid arthritis. Med. dosw. mikrobiol. 17 no.3:257-263 '65.

1. Z Zakładu Mikrobiologii Śląskiej AM w Zabrzu (Kierownik: prof. dr. J. Szaflarski).

L 45340-66 EWP(j)/EWP(t)/ETI IJP(c) JD/RM
 ACC NR: AT6033597 SOURCE CODE: HU/2502/66/047/001/0037/0052
 AUTHOR: Csaszar, Jozsef—Chasar, I. (Doctor; Szeged); Felvegi, Anna (Szeged) 43
 ORG: Institute for General and Physical Chemistry, Szeged University, Szeged B+1
 TITLE: Magnetic and spectroscopic investigation of polynuclear complex cyanides
 SOURCE: Academia scientiarum hungaricae. Acta chemica, v. 47, no. 1, 1966, 37-52
 TOPIC TAGS: cyanide, spectroscopy
 ABSTRACT: The magnetic susceptibility characteristics, absorption spectra, and reflection spectra of 22 polynuclear complex cyanides of potassium, iron, cobalt, nickel, and copper with iron, cobalt, nickel, ammonia, and platinum were determined and the data (presented in detail) analyzed. In most instances the structures appeared the same as those of the corresponding hydrated ions. The initial structures of Turnbull Blue and of Prussian Blue are identical; subsequent changes in hue were attributed to charge-transfer processes. Orig. art. has: 12 figures and 4 tables. [Orig. art. in Eng.] [JPRS: 34,669]
 SUB CODE: 07, 20 / SUBM DATE: 01Jul65 / ORIG REF: 003 / OTH REF: 038
Nitrogen Compounds
 Card 1/1 LC 0920 1640

PEL'YE, G. P.

Math
&
Chem

Hydrolysis of silk in acid solution. R. G. Brodu, L. T. Balov'et, and G. P. Pel's. (A. A. Zhdanov State Univ., Leningrad). *Uchenye Zapiski Leningrad. Gosudarst. Univ.* No. 136, Ser. Biol. Nauk No. 24, 173-8 (1952). -- A variety of Middle-East silk (N 16.5, H₂O 10.75, and ash 1.58%) heated with 8N H₂SO₄ (7-fold excess) for 10 hrs. on a sand bath gave products contg. amino N 94, hydroxyamino acid N 16, NH₃ 3.3, and glycine N 86%. Treatment of hydrolysis products with Ba(OH)₂ followed by electrophoresis in a 5-compartment app. equipped with gelatin membranes gave 3 fractions consisting of diamino acids 15.3, monoamino acids 79.0, and dicarboxylic amino acids 6%. Rates of hydrolysis of silk were equal in 8N H₂SO₄ and 11N HCl as judged by detn. of the ratios of amino N/total N and hydroxyamino acid N/total N. Hydrolysis was 94% complete after a hrs. Detn. of amino N/total N in hydrolysis products (obtained by heating silk with 2 parts of 10N HCl at 40°) and estn. of the free-amino/acid content (cf. Stein, et al., C.A., 35, 5237) allowed calcd. of the following av. nos. of amino-acid units in the hydrolysis fragments after 3, 6, 10, 17.2, and 24 hrs.: 5.7, 4, 3, 2.3, 2.3.

Isen Pascal

Feizyeghy, E

PAGE 1 OF 6
NEW YORK

Chief, Security Section Institutional Police Unit

World Filicites (*Selaginaceae* Horn) Club, *Intergovernmental Filicites*, 1993, 67 p. *Grasses* all inserted. No. of copies printed not given. No contributors mentioned.

REVIEWER: This book is intended for mathematicians, physicists, chemists, and civil and mechanical engineers.

CONTENTS: The book consists of 39 papers by Russian specialists on problems in electronics and technology, particularly microwave, optics, chemistry, metallurgy, civil and mechanical engineering. Discussions in Russian and French or German are given at the end of each article. Some of the articles are accompanied by references. So specialists are welcomed. In the back of the book there are 23 references, all Russian.

TABLE OF CONTENTS :

PAPE 2. MATERIALES • PRODUCTOS • CONTENEDORES

73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

FEL'ZENBAUM, A.I.

AID P - 2493

Subject : USSR/Meteorology

Card 1/1 Pub. 71-a - 3/26

Author : Fel'zenbaum, A. I., Kand. Phys. and Math. Sci.

Title : Primary flow in the theory on shallow sea currents

Periodical : Met. i Gidro., 3, 16-22, My-Je 1955

Abstract : The author gives a mathematical analysis of currents, using the Poisson formula for a shallow sea connected with a section of a deep sea. As an example, he uses the northern and central sections of the Caspian Sea and computes the horizontal circulation (wind from the East). The route of the currents is traced on three diagrams. Four Russian references, 1940-1953.

Institution: None

Submitted : No date

SOV/124-57-3-3082

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 61 (USSR)

AUTHOR: Fel'zenbaurn, A. I.

TITLE: Concerning the Theory of Ocean Currents (K teorii morskikh techeniy)

PERIODICAL: Tr. Gos. okeanogr. in-ta, 1955, Nr 29, pp 65-91

ABSTRACT: The aim of the work is to determine the steady-state currents and the distribution of the density and the level of the sea as generated by a wind. I. The case of deep sea. The initial equations comprise the hydrostatic equation, the equation of continuity, and two equations of motion containing terms determined by the turbulent mixing in both the horizontal and the vertical directions, the Coriolis force, and the pressure gradients. All of the equations are linear. The boundary conditions consist of the condition of equality of the component of the friction forces along the water-air boundary and the condition of adhesion of the liquid to the bottom of the sea. The procedure of the solution is as follows: First, an equation for the stream function is derived, wherein the term which expresses the variation of the Coriolis parameter with respect to the latitude is excluded;

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SOV/124-57-3-3082

Concerning the Theory of Ocean Currents

then, by considering the stream function as known, the distribution of the density is determined with the aid of the V. B. Shtokman density model; finally, from the known field of density values the physical level of the sea is determined from the hydrostatic equation. For the determination of the velocities at different depth levels the author returns again to the equations of motion and considers the density and, consequently, the pressure as known. The flow velocity is split into a gradient component and a component of pure drift. The gradient component is considered to be geostrophic; the pure-drift component is expressed in the form of the Ekman solution. II. The case of shallow sea. In this case the terms determined by the Coriolis force and the horizontal mixing are excluded and the slope of a level is readily expressed in terms of the stream function. For the case of the shallow sea the author considers the solution of the problem for a variable sea depth and a variable coefficient of vertical mixing. The method of solution is similar to that of a deep sea. The author does not determine the stream function but limits himself to pointing out that it can be found by numerical integration of the equation obtained.

A. S. Sarkisyan

Card 2/2

FEL'DENBAUM, A. I.

✓ Fel'denbaum, A. I. Investigation of connections between wind, distribution of density, level and currents of an inhomogeneous sea. Izv. Akad. Nauk SSSR. Ser. Geofiz. 1956, 958-967. (Russian)

The known general solution of the distribution problem of velocities (currents) and densities which are caused by the action of a known wind on various levels of an inhomogeneous and deep sea of finite extension but arbitrary shape is applied by the author to a particular case when the sea's shape is rectangular and the friction is neglected.

E. Kogbelliantz (New York, N.Y.).

FEL'ZENBAUM, A.I.

Baroclinic layer in the ocean. Meteor. i gidrol. no.1:19-24
Ja '56. (Ocean) (MIRA 9:6)

FELZENBAUM, A. I.

Distr: 481/484

Fel'zenbaum, A. I. Investigation of vortex motions of a fluid by the methods of analytic functions with a perfect set of singular points. Vestnik Moskov. Univ. Ser. Mat. Meh. Astr. Fiz. Him. 11 (1956), no. 1, 17-22. (Russian)

1-FW

The present application of the theory of complex analytic functions to the plane flow of an incompressible fluid (admits only the existence of isolated vortexes (singular points). But if in the vector field of flow there exist whole vortex regions then the classical approach cannot be used. To solve this problem Fel'zenbaum uses the tool of complex analytic functions with a perfect set of singular points. Assume a plane motion of an incompressible fluid in a domain Σ and a perfect set S of singular points in Σ , corresponding to vortexes. The vortex intensity γ is a continuous function of coordinates in S and its value in S is nowhere equal to zero. The complex potential $w(z)$ is equal to the surface integral over S of the product of $[\gamma(t) \ln(z-t)]$ divided by $2\pi i$, where t refers to the values in S only. It expresses the magnitude of w everywhere in Σ outside a small region around the point z . Using the tool of the theory of analytic functions,

1/2

Chair of Aeromechanics Moscow Univ

Fel'zenbaum, A.I.

Fel'zenbaum shows that: (a) the complex velocity $f(z) = w'(z)$ is an analytic function in the whole plane with an everywhere perfect set of singular points, (b) all the points of S are singular points of $f(z)$, (c) $f(z)$ is bounded in the whole plane; (d) $w(z)$ is an analytic function. Next Fel'zenbaum derives both the generalized Blasius formulae for the force and moment (also for the arm of the force) acting on a closed contour (body) in a uniform flow. In agreement with the intuitive guess the circulation is shown to be equal to the surface integral over S of $\gamma(t)$.

M. Z. Krzywobłocki (Urbana, Ill.)

5

1-FW

2

3/2

RHA smw

SOV/124-58-2-1929

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 2, p 58 (USSR)

AUTHOR: Fel'zenbaum, A. I.

TITLE: Indirect Method for the Determination of the Vertical Exchange (Austausch) Coefficient in a Shallow Sea as a Function of its Depth, the Wind Velocity, and the Vertical Coordinate (Kosvennyy metod opredeleniya koeffitsiyenta vertikal'nogo obmena v zavisimosti ot yego glubiny, skorosti vetra i vertikal'noy koordinaty)

PERIODICAL: Tr. In-ta okeanolog. AN SSSR, 1956, Vol 19, pp 46-56

ABSTRACT: The author applies dimensional concepts and shows that A , the kinematic vertical-exchange coefficient corresponding to turbulent motion within the liquid, can be expressed by the formula

$$A = c W H \phi(\bar{z}) \quad [\bar{z} = z/H]$$

where c is a factor of proportionality, W is the wind velocity, H is the depth of the sea, and z is a vertical coordinate. Using the solution of an auxiliary problem the author determines c , assuming $\phi(\bar{z})$ known. Prescribing various values for $\phi(\bar{z})$ the

Card 1/2

SOV/124-58-2-1929

Indirect Method for the Determination of the Vertical Exchange

author obtained various expressions for A. A formula is given for the velocity of a current. Comparisons are adduced between calculations and some tests in a model basin, showing satisfactory agreement. Bibliography: 12 references.
Ya. I. Sekerzh-Zen'kovich

Card 2/2

FELZENBAUM, A.I.

124-11-12729

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr. 11, p. 58 (USSR)

AUTHOR: Fel'zenbaum, A.I.

TITLE: The Full-Flow Transport Method in the Classical Theory of Ocean Currents. (Metod polnykh potokov v klassicheskoy teorii morskikh techeniy)

PERIODICAL: Tr. In-ta okeanolog., A.N. SSSR, 1956, Nr 19, pp 57-82

ABSTRACT: The A. discusses the problems of stationary currents in a homogeneous ocean arising from the action of tangential wind shear at the ocean surface. Two basic equations of motion are established (wherein terms covering the turbulent vertical mixing, the Coriolis force, and the pressure gradients are included), namely, the equation of static equilibrium and the equation of continuity for an incompressible fluid. The boundary conditions at the ocean surface, that is, for

$z = \xi$, are represented by the equation of the air-water friction,

those at the ocean bottom by the condition of adherence. On the ocean surface the condition of pressure continuity is also observed. A rise in the water level is represented by the sum $\xi = \xi_c + \xi'$.

Card 1/4

124-11-12729

The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

Utilizing the equation of static equilibrium and noting that the slope of the surface ξ_C , occasioned by the static effects of the atmospheric pressure, balances the gradient of that pressure, the author replaces the gradients of the hydrostatic pressure with the slopes of the surface ($\partial \xi' / \partial x$, $\partial \xi' / \partial y$) occasioned by the action of the wind. Ultimately the A. arrives at the following system of equations:

$$A \frac{\partial^2 u}{\partial z^2} + 2\omega \rho_0 \sin \phi v = -g \rho_0 \frac{\partial \xi'}{\partial x} \quad (1)$$

$$A \frac{\partial^2 v}{\partial z^2} - 2\omega \rho_0 \sin \phi u = -g \rho_0 \frac{\partial \xi'}{\partial y} \quad (2)$$

$$\frac{\partial s_x}{\partial x} + \frac{\partial s_y}{\partial y} = 0 \quad (3)$$

Card 2/4 Here u and v are the velocity components of the current along the

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The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

x and y axes; S_x and S_y are the components of the flow transport, A is the coefficient of vertical turbulent mixing, Ω is the angular velocity of the Earth, g is the acceleration of gravity, and φ is the geographic latitude. For the solution of a problem, the A. firstly expresses u and v in terms of the wind friction and the surface slope, with due consideration to the boundary conditions. In order to express a direct relationship between the dynamic lifting of the sea surface and the wind, a second-order equation relative to ξ' can be obtained; it is noted that, even if the ocean is assumed to be sufficiently deep and the equation is simplified, the problem remains extremely complicated. If, utilizing Eq.(3), a flow-transport function ψ is introduced, all of the desired hydrodynamic characteristics can be expressed in terms of ψ . The A. demonstrates that, in that instance, the boundary condition of the problem become fairly simple. Simplified methods for the solution of the problem are shown separately for the cases of a very shallow and a very deep ocean, respectively. Analytical solutions for the problem are shown for two categories of specific cases: 1) Currents caused by a uniform wind in a closed sea having a constant depth; in this case $\psi \equiv 0$ and the problem is

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The Full-Flow Transport Method in the Classical Theory of Ocean Currents (cont.)

solved readily; 2) Currents in a rectangular sea having a constant depth; this problem is resolved analytically by expanding the given and the unknown quantities in double series according to sine functions of x and y . A solution can also be obtained for the currents at the central cross-section of a sea having an elongated form.

(A. S. Sarkisyan)

Card 4/4

FEL'ZENBAUM, A.I.

Relation of the wind to the water level and to steady currents in shallow sea. Dokl. AN SSSR 109 no.1:80-83 J1-Ag '56. (MIRA 9:10)

1. Gosudarstvennyy okeanograficheskiy institut. Predstavleno akademikom V.V. Shuleykinym.
(Winds) (Ocean currents)

FEL'ZENBAUM, A.I.

3
Fel'zenbaum, A. I. (Gov't Oceanograph. Inst.), Obobshcheniia teorii Ekmana na sluchai neravnomernogo vetra i proizvol'nogo rel'efa dna zamknuтого моря. [Generalization of Ekman's theory for a case of non-uniform wind and given bottom relief of an enclosed sea.] *Akademiia Nauk SSSR, Doklady*, 109(2):299-302, July 11, 1956. 4 refs., 20 eqs. DLC-4
The problem of the determination of the type of currents brought about by wind actions in enclosed sea with a known coastal configuration and a given bottom relief. In the solution of this problem the following are considered: vertical exchange by the amount of motion, counterforce friction at the bottom and slope of the sea surface covered by the waves. The wind field depending on both horizontal coordinates is considered as given; the elements to be determined are the velocities of currents at individual horizons and levels. The equation obtained is a generalization of Ekman's equation; it is

$$\frac{\partial}{\partial x} \left(\beta \frac{\partial \epsilon}{\partial x} \right) + \frac{\partial}{\partial y} \left(\beta \frac{\partial \epsilon}{\partial y} \right) + \frac{\partial}{\partial x} \left(x \frac{\partial \epsilon}{\partial y} \right) - \frac{\partial}{\partial y} \left(x \frac{\partial \epsilon}{\partial x} \right) = \tau_0 \epsilon \pi T - \text{div } \pi T.$$

and it can be derived from Ekman's equation by assuming that the depth of the sea is every where double the depth of friction. Subject Headings: I. Wind driven currents.—I.L.D.

FEL'ZENBAUM, A.I.; FOMIN, L.M.; SHTOKMAN, V.B.

Calculating deep-sea currents by means of using the surface currents
and the gradient of atmospheric pressure. Trudy Inst. okean. 25:153-
170 '57. (MIRA 11:2)

(Ocean currents)

AUTHOR
TITLE

PERIODICAL

ABSTRACT

FEL'ZENBAUM A.I.

On Extension of the Theory of Steady Currents in a Shallow Sea to the Case Where the Coefficient of Vertical Exchange is a Variable.
(Obobshcheniye teorii ustanovivshikhsya tesheniy morskogo morya na sluchay peremennogo koeffitsienta vertikal'nogo obmena. Russian)
Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 86-89 (U.S.S.R.)
Received 9/1956
Reviewed 6/1957

The author generalized the theory of the steady currents of a shallow sea for the case that the coefficient of the vertical exchange changes in a vertical as well as in a horizontal direction. The equations of the steady motion and the boundary conditions valid on the surface of the sea are written down explicitly. By the multiple integration of the function $\psi(x,y)$ the formulae for the components S_x and S_y of the entire current are obtained. The problem is reduced to the determination of the function $\psi(x,y)$ of the entire flows. The equation for ψ is determined and written down. If the sea is closed-in, the relation $(\psi)_L = 0$ applies at its boundary. The components of the tangential stress of the wind are determined by the modulus W and the components W_x and W_y of wind velocity. The coefficient of the vertical exchange may depend upon the wind velocity, the depth of the sea, and the determination of that current which in an enclosed shallow sea of constant depth is caused by a steady wind. In this case the solution of the problem is simplified into a LAPLACE equation for the function ψ . The solution is $\psi = 0$. The expressions found in conclusion for the inclinations of the surface of the sea and for the horizontal components

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On Extension of the Theory of Steady Currents in a Shallow PA - 2654
Sea to the Case Where the Coefficient of Vertical Exchange is a Variable.

nents of the current velocity, as well as the equations for the functions
of the complete currents are written down explicitly and discussed. Com-
parison of the computed and observed current velocities shows which of
the computation systems concerned is the most advantageous.

ASSOCIATION . Institute for Oceanography of the Academy of Science of the USSR
PRESENTED BY
SUBMITTED 5.11.1956
AVAILABLE Library of Congress
Card 2/2

PA - 3018

AUTHOR
TITLE

FEL'ZENBAUM, A.I.,

Theoretical Foundations for Calculating the Ice Drift in the Central Arctic Basin,

(Teoreticheskiye osnovy rascheta dreyfa l'dov v tsentral'nom arkti-cheskom basseye - Russian)

PERIODICAL

Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 2, pp 307-310, (U.S.S.R.)
Received, 6/1957
Reviewed 7/1957

ABSTRACT

The real ice-drift in the Arctic Basin is extraordinarily complicated because of some incidental factors (e.g. pulsation of the wind and the current. Form, dimensions and depth of immersion of the icebergs etc.). Therefore it is reasonable to average ice-drift, wind and current over a large enough interval of time. The author here assumes that the influence of the incidental factors compensates on the occasion of such averaging (over a month or a season). Moreover it is said to be possible to obtain this averaged condition by solving a steady problem. First the author puts down the equation of the seawater motion, that has become steady, of the ice and the air along the horizontal Cartesian X and Y. The nonlinear terms of inertia and the terms due by the horizontal exchange of the momentum are here neglected. Then the boundary conditions are given. On the surface of the ice the conditions of adhesion (Reviews note, apparently of the water to the ice), are valid, and the current may reach down only to a depth of $H = 200$ m. In great altitudes the wind is geostrophical. The drive-analyses of "Fram", "Sedov" and the stations "North Pole 1-4" show that the entire ice-drift on an average

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in the Central Arctic Basin.

consists by $\frac{2}{3}$ of a gradient-drift and by $\frac{1}{3}$ of a merely wind conditioned drift. The generalization of the here discussed theory of the general ice-drift for the case of variable coefficients of the vertical exchange in the atmosphere and hydrosphere and for the case of variable penetration of the current does not meet any fundamental difficulties. (Without illustrations).

ASSOCIATION Institute for Oceanology of the Academy of Sciences of the U.S.S.R.
PRESENTED BY SHULEYKIN, V.V., 26.11.1956.
SUBMITTED 9.6.1956
AVAILABLE Library of Congress
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FEL'ZENBAUM, A. I.

20-2-15/50

AUTHOR: Fel'zenbaum, A. I.

TITLE: On the Compressions and Expansions of Ice in the Arctic Basin
(O szhatiyakh i razrezheniyakh l'dov v arkticheskom basseyne)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 217 - 220 (USSR)

ABSTRACT: The first chapter of this paper deals with the compressions and expansions of ice drifts in the central Arctic Basin, which have become steady. The author here obtains more accurate results than in his previous paper (ref. 1). According to these formulae the divergence of the velocity of the entire ice drift is proportional to the Laplace operator, applied to atmospheric pressure. For the determination of the zones of the compressions and expansions it suffices to compute the Laplace operator for the atmospheric pressure. In the zones with $\Delta p < 0$ the ice is compressed and in the zones with $\Delta p > 0$ it is expanded. In the zones with $\Delta p = 0$ the connection of the ice does not change. The second chapter deals with compressions and expansions of ice drifts which have not become steady. As the problem of the drifts of not grown together masses of ice that have not become steady, has not been solved, a computation of the divergency of the velocity of the drift which has not become steady is not yet possible. It is, however, possible to

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obtain a certain conception of the compressions and expansions of ice masses in the case of drifts which have not become steady but are caused only by wind, if the field of the tangential stress of the wind is analyzed. The considerations, upon which this analysis is based, are mentioned. Next, a highly idealized example is investigated. The last chapter deals with the index of atmospheric circulation. This index is defined as a quantity which is proportional to the divergence of the gradient of atmospheric pressure. Besides, the integral index with respect to the surface of atmospheric circulation is introduced. The index suggested here is not only connected with the surface but has, besides, also an immediate physical significance, for it characterizes the asymmetry of those forces which act from the atmosphere on the ice masses. There are 7 Slavic references.

ASSOCIATION: Institute for Oceanology AN USSR
(Institut okeanologii Akademii nauk SSSR)

PRESENTED: April 30, 1957, by V. V. Shuleykin, Academician

SUBMITTED: April 26, 1957

AVAILABLE: Library of Congress
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FEL'ZENBAUM, A. I.

"The computation of the stabilized ice drift in the Arctic Basin"

report presented at a Scientific Conference on Dynamic and Thermal Interaction
of the Atmosphere and Hydrosphere, 26-29 Mar. 1958, Leningrad (Vest Ak nauk SSSR,
7, '58, pp. 128-29)

FEL'ZENBAUM, A.I.

Theory of settled drifting of ice and calculation of the average drift for a period of many years in the central part of the Arctic Basin. Probl.Sev. no.2:16-46 '58. (MIRA 12:4)

1. Institut okeanologii AN SSSR.
(Arctic Ocean--Ice)

3(9)

AUTHOR:

Fel'zenbaum, A. I.

SOV/20-125-4-24/74

TITLE:

The Generalization of the Classical Theory of Steady Marine Currents to the Case of the Variable Coefficient of Vertical Exchange (Obobshcheniye klassicheskoy teorii ustanovivshikhsya morskikh techeniy na sluchay peremennogo koeffitsiyenta vertikal'nogo obmena).

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 4, pp 779-781 (USSR)

ABSTRACT:

Formerly, in the course of the development of Ekman's classical theory, the author found the basic solution of the problem of determining steady flows due to inconstant wind in a closed-in sea with variable bottom relief. In the present paper the theory is generalized for the case in which the coefficient of vertical exchange in horizontal directions depends on the depth of the sea and on the Coriolis parameter. First, the basic equations of the theory are explicitly written down and explained. For the purpose of indirectly determining the vertical exchange coefficient the author investigates the problem of determining a vertical flow which is excited by a constant wind in a closed-in sea of constant depth. A

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formula is written down for the velocity modulus of the surface current. For the dependence of the tangential stress T of wind on the wind velocity W it holds that $T = \gamma W^2$, and for the exchange coefficient the formula

$A = \frac{1}{R_0} \frac{W^2}{k^2} S$ is obtained, where k denotes the ratio between the velocity of the surface current and the velocity of the wind causing this current. A formula is then written down for the quantity aH , which is of practical interest in the present case. (The denotations used here appear to have been defined already in an earlier paper). There are 2 figures and 4 Soviet references.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute for Oceanography of the Academy of Sciences, USSR)

PRESENTED: November 13, 1958, by V. V. Shuleykin, Academician

SUBMITTED: November 12, 1958
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3(9)

AUTHOR:

Fel'zenbaum, A. I.

SOV/20-126-1-17/62

TITLE:

Ice Field Drift Averaged Over Many Years in the Central Arctic Basin (Sredniy mnogoletniy dreyf l'dov v tsentral'nom arkticheskom basseyne)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 66-69 (USSR)

ABSTRACT:

As an example for the application of the theory (Refs 1, 2), the author computed the ice drift averaged over many years in the Central Arctic Basin. The computations were made by the difference method for the field of atmospheric pressure averaged over many years, which is also illustrated in a sketch adjoining. The components of the velocity of the purely wind-caused drift were computed by the difference formulas developed in a previous paper of the author (Ref 2), for a coefficient $K = 9000 \text{ km}^2/\text{sec.millibar}$ of the isobaric drift and for a coefficient $K' = 0.2 K$ of the diverted drift. The gradient drift is represented as the sum of the principal gradient drift (caused by the irregularity of the wind and computed without consideration of the water exchange with the neighboring sea basins) and of the additional gradient drift

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(caused by this water exchange). In the computation of the additional gradient drift, the author started from the data by V. T. Timofeyev (Refs 4, 5, 6). The computations delivered tables for the values of the velocity and direction of the single components, as well as of the total drift of ice. On the basis of these data, the charts were drawn, among which the present paper puts forward the charts for the purely wind-caused drift, the gradient drift and the total ice drift. The analysis of the tables and charts leads to the following conclusions :

- 1) In the eastern part of the Arctic Ocean (bordering the Pacific Ocean), there is an anticyclonic circulation of the ice with its center at about 78° north latitude and 146° west longitude. This drift is mainly conditioned by the irregularity of wind above the Central Arctic Basin.
- 2) In the western (Atlantic) part of the Arctic Ocean, the ice mainly drives from the Siberian coast into the gulf between Spitsbergen and Greenland, the direction of the gradient drift coinciding, on an average, with the direction of the purely wind-caused drift.
- 3) The principal part in the total drift averaged over many years is played by the gradient drift, the average speed

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Ice Field Drift Averaged Over Many Years in the
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of which (56 km per month) amounts to 66% of the average speed of the total ice drift (85 km/month). The purely wind-caused drift (the average speed of which is 34 km/month) is less important, particularly in the eastern part of the Arctic Ocean. 4) The principal part in the gradient drift of ice is played by the principal gradient drift (average speed 41 km/month). The rôle of the additional gradient drift (average speed 28 km/month) is less important, particularly in the areas far from the Bering Gulf, and from the gulf between Spitsbergen and Greenland. There are 4 figures.

ASSOCIATION: Institut okeanologii Akademii nauk SSSR (Institute of Oceanology of the Academy of Sciences, USSR)

PRESENTED: November 13, 1958, by V. V. Shuleykin, Academician

SUBMITTED: November 12, 1958

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FEL'ZENBAUM, Aleksandr Isayevich; SHTOKMAN, V.B., prof., otv.red.;
GUROV, Kh.P., red.izd-vo; TIKHOMIROVA, S.G., tekhn.red.

[Theoretical foundation and methods of calculating steady
currents in the sea] Teoreticheskie osnovy i metody rascheta
ustanovivshikhsia morskikh techenii. Moskva, Izd-vo Akad.nauk
SSSR, 1960. 126 p. (MIRA 13:11)
(Ocean currents)

FEL'ZENBAUM, A. I.

Doc Phys-Math Sci - (diss) "Development of the theory of steady currents and ice drift." Moscow, 1961. 18 pp; (Moscow State Univ imeni M. V. Lomonosov); 200 copies; price not given; list of author's works at end of text (12 entries); (KL,6-61 sup, 191)

SGIBNEVA, L.A.; FEL'ZENBAUM, A.I.

Theory of tides in a fluid with friction. Dokl. AN SSSR 164
no.2:315-318 S '65. (MIRA 18:9)

1. Gosudarstvennyy okeanograficheskiy institut i Morskoy
gidrofizicheskiy institut AN UkrSSR. Submitted March 3, 1965.

FEL'ZENBAUM, A.I.

Dependence of wind coefficients in the Arctic basin on the wind velocity and ice thickness. Dokl. AN SSSR 164 no.3:556-558
S '65. (MIRA 18:9)

1. Moskovskiy gidrofizicheskiy institut AN UkrSSR. Submitted
March 3, 1965.

L 26474-66 EWT(1) GW

ACC NR: AP6017396

SOURCE CODE: UR/0020/65/164/002/0315/0318

AUTHOR: Sgibneva, L. A.; Fel'zenbaum, A. I.

ORG: State Oceanographic Institute (Gosudarstvennyy okeanograficheskiy institut);
Marine Hydrophysical Institute, AN UkrSSR (Morskoy gidrofizicheskiy institut AN UkrSSR)

TITLE: Theory of tides in a liquid with friction

SOURCE: AN SSSR. Doklady, v. 164, no. 2, 1965, 315-318

TOPIC TAGS: ocean tide, sea water, computer calculation, ocean dynamics

ABSTRACT: In computing tides in sea and ocean basins it is necessary to take into account the variability of current velocity as a function of the vertical coordinate. In this article the authors consider this problem taking into account turbulent friction in sea water resulting from vertical exchange of momentum. This effect is maximal in shallow seas, whereas the inhomogeneity of sea water is more important in deep seas and oceans. As in Sverdrup's studies, friction in sea water is taken into account by introducing into the equations of horizontal motion terms which contain the second derivatives of current velocity relative to the vertical coordinate. The authors consider the general case when current velocity is dependent not only on time and the vertical coordinate, but also on both horizontal coordinates. A system of equations is derived which is integrated easily using an electronic computer. Orig. art. has: 40 formulas. [JPRS]

SUB CODE: 08 / SUBM DATE: 01Mar65 / ORIG REF: 001 / OTH REF: 002
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B

L 09176-67 EWT(1) GW

ACC NR: AP7002294

SOURCE CODE: UR/0020/66/168/004/0788/0791

AUTHOR: Mikhaylova, E. N.; Fel'zenbaum, A. I.; Shapiro, N. B. 21

ORG: Marine Hydrophysical Institute, AN UKRSSR (Morskoy gidrofizicheskiy institut AN UKRSSR)

TITLE: Computing steady-state sea and ocean currents

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 788-791

TOPIC TAGS: ocean current, atmospheric wind, climatology

ABSTRACT:

The article cited below is a special case which is best understood against the background of material given by one of the authors, A. I. Fel'zenbaum, in his book Teoreticheskiye Osnovy i Metody Rascheta Ustanovivshikhsya Morskikh Tечeniy (Theoretical Principles and Methods of Computation of Steady-State Sea Currents). The authors consider the problem of determination of a steady-state current caused by the wind and climatological factors in a sea or ocean basin. Since the horizontal dimensions of the basin considerably exceed its depth, there is a singular boundary layer at the bottom of the basin. It therefore is possible to adopt the condition of hydrostatics and in the equations of horizontal motion there is allowance only for vertical exchange of momentum. A numerical solution of the prob-

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ACC NR: AP7002294

lem is given. For a simplification two cases are considered: a homogeneous liquid with allowance for the nonlinearity of the equation of motion and a nonhomogeneous liquid without this allowance made. The nonstationary problem can be solved easily by neglecting certain terms in the equations of horizontal motion. This article was presented by Academician L. I. Sedov on 28 July 1965. Orig. art. has: 19 formulas. [JPRS: 37,397]

SUB CODE: 08,04 / 26Jul65 / ORIG REF: 005

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